

REMARKS

I. SPECIFICATION

Applicants currently amend the first paragraph of page 17 of the as-filed specification, lines 1-11, to reflect a listing of the layered materials that was described in the as-filed application. Support for the amendment can be found in original claim 27, which recited each of the layered materials that are currently listed in the amended paragraph. This paragraph was also amended to correct obvious typographical errors regarding the terms “magadiite,” “kenyaite,” and “halloysite.” Accordingly, there is no issue of new matter.

II. STATUS OF THE CLAIMS

Claims 78-83, 85-86, 89-92, 101-102 and 105-109 are pending and under consideration on the merits. Without prejudice, claims 78 and 101 have been amended. Specifically, claim 78 has been amended to focus the recited layered materials on structures comprising at least one interlayer surface, wherein at least one exchangeable cation selected from Na^+ , Ca^{2+} , K^+ , and Mg^{2+} is present at said at least one interlayer surface. Accordingly, dependent claim 101 has been amended to reflect the structure of the layered materials currently recited in claim 78, as well as to correct an obvious typographical error of the terms “magadiite,” “kenyaite,” and “halloysite.”

Support for the above amendments may be found throughout the as-filed specification and claims. For example, Section 112 support for the amendments to claim 78 can be found at page 17, lines 9-11 of the specification-as-filed and as-amended. Applicants submit that the amendments raise no issue of new matter.

II. RESPONSE TO REJECTIONS UNDER 35 U.S.C. § 103(a)

As an initial matter, Applicants thank the Examiner for withdrawing the rejections over European Patent No. 1 193 085 to Larson in view of U.S. Patent No. 5,238,991 to Magnus and/or U.S. Patent No. 4,871,004 to Brown.

The Office now rejects claims 78-83, 85-86, 89-92, and 105-109 under 35 U.S.C. 103(a) as allegedly being unpatentable over U.S. Patent No. 6,269,858 to Sandstrom ("Sandstrom") and further in view of U.S. Patent No. 3,976,598 to Daviditz ("Daviditz"). Office Action, pages 2-5. The Office also rejects claims 101 and 102 under 35 U.S.C. 103(a) as allegedly being unpatentable over Sandstrom and Daviditz in further view of U.S. Patent No. 6,727,307 to Kondo et al. ("Kondo"). *Id.* at 5. For at least the reasons discussed below, Applicants respectfully disagree and traverse the new rejections.

The Office alleges that Sandstrom, the primary reference, "expressly teaches a tire tread composition including at least one diene based elastomeric polymer, at least one methylene donor, and at least one methylene acceptor, wherein the disclosed loadings are consistent with those required by the claimed invention (Column 26, Lines 40+ and Table 5+)." *Id.* at 2. The Office further contends that Sandstrom teaches the "inclusion of at least one inorganic filler, such as kaolin clay . . . [which] is recognized as a 'layered material.'" *Id.* at 2-3. The Office acknowledges that Sandstrom "fails to disclose the layer thickness" of the kaolin clay disclosed therein. *Id.* at 3. In an effort to remedy that deficiency, the Office applies Daviditz. *Id.* According to the Office, "Daviditz teaches that the claimed [thickness] values are consistent with those associated with kaolin clay (Column 2, Lines 1+)." *Id.*

With respect to dynamic elastic modulus, the Office alleges that claimed elastic modulus values are “a direct function of including a methylene acceptor, a methylene donor, and a layered material in a diene based composition usable in a tire tread,” though the Office cites no support for its contention. *Id.* Further alleging that such a composition is “identical to the tread composition of Sandstrom,” the Office contends that “one of ordinary skill in the art at the time of the invention would have expected the composition of Sandstrom to demonstrate the claimed dynamic modulus.” *Id.*

Applicants respectfully disagree with the Office’s assertions. Nevertheless, in an effort to expedite prosecution, Applicants amend claim 78 to further recite “wherein said at least one layered material comprises at least one interlayer surface, wherein at least one exchangeable cation selected from Na^+ , Ca^{2+} , K^+ , and Mg^{2+} is present at said at least one interlayer surface.” A person of ordinary skill in the art would appreciate that kaolin clays, which are represented by the general structure $\text{Al}_2\text{O}_3 \cdot 2\text{SiO}_2 \cdot 2\text{H}_2\text{O}$ (see Kondo, col. 3, lines 36-37), do not comprise any of the exchangeable cations currently recited in claim 78 at an interlayer surface. A skilled artisan would also appreciate that while compounds such as talc ($\text{Mg}_3\text{Si}_4\text{O}_{10}(\text{OH})_2$) may comprise metal atoms like Mg in the lattice structure, they do not comprise cations such as Mg^{2+} **at the interlayer surface**. See, e.g., Li et al., *J. Miner. Mater. Character. Eng.*, Vol. 1:1 61-68, 66 (2002) (“The difference [between talc and vermiculite] is that the talc has no interlayer cations and cohesion between successive sheets is very slight.”). For at least those reasons, Applicants submit that the Office’s rejection of claims 78-83, 85-86, 89-92, and 105-109 is rendered moot and should be withdrawn.

With regard to claims 101 and 102, the Office concedes that Sandstrom “fails to expressly teach the inclusion of montmorillonite clay ... in tire tread compositions. . . .” *Id.* at 5. Nevertheless, the Office alleges that montmorillonite clays are “conventionally disclosed in an alternative manner with kaolin clay in tire tread compositions, as shown for example by Kondo (Column 9, Lines 10-35).” *Id.* Applicants disagree.

As noted above, independent claim 78, from which claims 101 and 102 depend, has been amended to recite, *inter alia*, at least one layered material “wherein said at least one layered material comprises at least one interlayer surface, wherein at least one exchangeable cation selected from Na^+ , Ca^{2+} , K^+ , and Mg^{2+} is present at said at least one interlayer surface.” A skilled artisan would understand that unlike montmorillonite clays, kaolin clays do not comprise any of the exchangeable cations currently recited in claim 78 at the interlayer surface. Thus, a person of ordinary skill in the art would not look to the kaolin-containing compositions discussed in the primary reference Sandstrom to achieve the claimed invention. Moreover, even assuming Sandstrom was relevant, a skilled artisan understanding the distinct differences between the interlayer characteristics of kaolin and montmorillonite compounds would not be motivated to combine Sandstrom and Kondo in an effort to arrive at the compositions defined by the pending claims.

For at least the foregoing reasons, Applicants respectfully request withdrawal of the Office's rejection of pending claims 101 and 102 under Section 103.

III. CONCLUSION

In view of the foregoing amendments and remarks, Applicants respectfully request reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to Deposit Account No. 06-0916.

Respectfully submitted,

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